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Sub: E. I. Dupont De Nemours & Co.
Miami Twp., near North Bend, OH

CERCLIS:

Job: 030-00035112D

Site Longitude: 84-48-57 84.815826
Site Latitude : 39-06-45 39.112499

The CENTRACTS report below identifies the population, households, and private water wells of each Block Group that lies within, or partially within, the 4, 3, 2, 1, .5, and .25, mile "rings" of the latitude and longitude coordinates above. CENTRACTS may have up to ten radii of any length. 1000 block groups, and 15000 block group sides.

CENTRACTS uses the 1990 Block Group population and Block Group house count data found in the Census Bureau's 1990 STF-1A files. The sources of water supply data are from the Bureau's 1990 STF-3A files. The boundary line coordinates of the Block Groups were extracted from the Census Bureau's 1990 TIGER/Line Files.

CENTRACTS reports are created with programs written by Frost Associates, P.O. Box 495, Essex, Conn. The code was written using Microsoft's Quick-Basic Ver. 4.5.

Latitude and Longitude coordinates identifying a site are entered in degrees and decimal degrees. One or more county files holding Block Group boundary lines are selected for use by CENTRACTS by determining whether the site coordinates fall within the minimum and maximum Lat\Lon coordinates of each county in the state.

Each Block Group line segment has Lat\Lon coordinates representing the "From" and "To" ends of that line. All coordinates from the selected county files are read and converted from degrees, decimal degrees to X\Y miles from the site location. Each line segment is then examined whether it lies within or partially within the maximum ring from the site.

The unique Block Group ID numbers of each line segment that lie within the maximum ring are retained. All Block Group boundary lines matching the Block Group numbers are then extracted from the respective county files to obtain all sides of the included Block Groups. Boundary records are then sorted in adjacent side order to determine the shape and area of each Block Group polygon.

A method to solve for the area of a polygon is to take one-half the sum of the pro-

ducts obtained by multiplying each X-coordinate by the difference between the adjacent Y-coordinates. For a polygon with coordinates at adjacent angles A, B, C, D, and E. The formula can be expressed:

Area = 1/2{Xa(Ye-Yb)+ Xb(Ya-Yb)+ Xc(Yb-Yd)+ Xd(Yc-Ye)+ Xe(Yd-Ya)}

For each ring, the selected Block Groups will be inside, outside, or intersected by the ring. When a polygon is intersected, the partial Block Group area within that ring is calculated using the method described below.

When a ring intersects a Block Group, the intersect points are solved and plotted at the points where the ring enters and exits the shape. The chord line, a line within the circle connecting the intersect points is determined. This chord line is used to calculate the segment area, the half moon shape between the chord line and the ring, and the sub-polygon created by the chord line and the Block Group boundaries that lie outside the ring.

The segment area is subtracted from the sub-polygon area to determine the area of the sub-polygon outside the ring. The area outside the ring is then subtracted from the area of the entire polygon to arrive at the inside area. This inside area is then divided by the tract's total area to determine the percentage of area within the ring. This process is repeated for each block group that is intersected by one of the rings. The total area, partial area, and percentage of partial area of those block groups within, or partially within a ring, are held in memory for the report.

On occasion, the algorithm described above is unable to determine the area of the partial area. Within the report program is a "Paint" routine which allows an enclosed shape to be highlighted. Another routine calculates the percentage of highlighted screen pixels to the pixels within the polygon. A manual entry is allowed. Both the "paint" method and manual entry method over ride the calculated method.

CENTRACTS lists, starting on page 4, all Block Groups in State, County, Census Tract, and Block Group ID order that lie within, or partially within, the maximum ring. Each Block Group is identified by a City or Town name and by the Block Group's State, County, Tract and Block Group ID number. Following is the Block Group's 1990 populu tion and house count extracted from the Census Bureau's 1990 STF-1A files.

The next four columns display water source data from the 1990 STF-3A files. The first column is "Units with Public system or private company source of water", followed by "Units with individual well, Drilled, source of water"; "Units with individual well, Dug, source of water" and "Units with Other source of water".

For each ring, CENTRACTS then shows the Block Groups that are within that ring, the Block Group's total area in square miles, the partial area of the Block Group within that ring, and the partial percentage within the ring. The areas of the included Block Group and the partial areas are then totaled.

The last section tallies the demographic data within each ring. The percentage of area for each Block Group is multiplied times the census data for that Block Group and totaled for all Block Group's within the ring. Ring totals are then determined by subtracting the three mile data from the four mile, the two mile from the three mile, one from the two, etc... Population on private wells is calculated using the formula: ((Drilled + Dug Wells) / Households) * Population

E. I. Dupont De Nemours & Co.
Miami Twp., near North Bend, OH

No.	City	Block Group ID	Blk Grp People	House Holds	Public Water	Drilled Wells	Dug Wells	Other
1	Harrison	39061 0261 7	1623	573	321	40	106	108
2	Whitewater	39061 0262 3	467	182	27	15	112	32
3	Miami	39061 020401 3	515	182	180	0	0	0
4	Miami	39061 020401 5	194	78	84	0	0	2
5	Miami	39061 020402 5	691	254	220	0	0	42
	Totals:		3490	1269	832	55	218	184

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Miami Twp., near North Bend, OH

City	Census Tract ID	Tract People	House Count	Public Water	Drilled Wells	Dug Wells	Other Wells
Harrison	39061 0261 7	1623	573	321	40	106	108
	Sub Totals:	1623	573	321	40	106	108
Miami	39061 0204015	194	78	84	0	0	2
Miami	39061 0204013	515	182	180	0	0	0
Miami	39061 0204025	691	254	220	0	0	42
	Sub Totals:	1400	514	484	0	0	44
Whitewater	39061 0262 3	467	182	27	15	112	32
	Sub Totals:	467	182	27	15	112	32

E. I. Dupont De Nemours & Co.
Miami Twp., near North Bend, OH

For Radius of 4 Mi., Circle Area = 50.265482

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
1	Harrison	39061 2617	10.052733	0.718974	7.15
2	Whitewater	39061 2623	4.485585	2.727513	60.81
3	Miami	39061 204013	0.348315	0.007364	2.11
4	Miami	39061 204015	0.948376	0.090849	9.58
5	Miami	39061 204025	6.536088	5.896000	90.21
	Totals:		22.371098	9.440702	

For Radius of 3 Mi., Circle Area = 28.274334

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
1	Harrison	39061 2617	10.052733	0.130997	1.30
2	Whitewater	39061 2623	4.485585	1.617964	36.07
5	Miami	39061 204025	6.536088	4.145625	63.43
	Totals:		21.074406	5.894586	

For Radius of 2 Mi., Circle Area = 12.566371

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
2	Whitewater	39061 2623	4.485585	0.641423	14.30
5	Miami	39061 204025	6.536088	2.431000	37.19
	Totals:		11.021673	3.072423	

For Radius of 1 Mi., Circle Area = 3.141593

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
2	Whitewater	39061 2623	4.485585	0.475472	10.60
5	Miami	39061 204025	6.536088	1.028500	15.74
	Totals:		11.021673	1.503972	

For Radius of .5 Mi., Circle Area = 0.785398

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
5	Miami	39061 204025	6.536088	0.785398	12.02

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	Totals:		6.536088	0.785398	

For Radius of .25 Mi., Circle Area = 0.196350

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
5	Miami	39061 204025	6.536088	0.196350	3.00
	Totals:		6.536088	0.196350	

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Miami Twp., near North Bend, OH

========== Site Data ==========

Population:	1052.84
Households:	392.09
Drilled Wells:	11.98
Dug Wells:	75.68
Other Water Sources:	65.26

========== Partial (RING) data ==========

---- Within Ring: 4 Mile(s) and 3 Mile(s) ----

Population:	424.97
Households:	157.88
Drilled Wells:	6.05
Dug Wells:	33.90
Other Wells:	25.67

** Population On Private Wells: 107.55

---- Within Ring: 3 Mile(s) and 2 Mile(s) ----

Population:	304.09
Households:	113.72
Drilled Wells:	3.79
Dug Wells:	25.76
Other Wells:	19.39

** Population On Private Wells: 79.02

---- Within Ring: 2 Mile(s) and 1 Mile(s) ----

Population:	165.55
Households:	61.24
Drilled Wells:	0.55
Dug Wells:	4.14
Other Wells:	10.20

** Population On Private Wells: 12.70

---- Within Ring: 1 Mile(s) and .5 Mile(s) ----

Population:	75.20
Households:	28.74
Drilled Wells:	1.59
Dug Wells:	11.87
Other Wells:	4.95

** Population On Private Wells: 35.23

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---- Within Ring: .5 Mile(s) and .25 Mile(s) ----

Population:	62.27
Households:	22.89
Drilled Wells:	0.00
Dug Wells:	0.00
Other Wells:	3.79

** Population On Private Wells: 0.00

---- Within Ring: .25 Mile(s) and 0 Mile(s) ----

Population:	20.76
Households:	7.63
Drilled Wells:	0.00
Dug Wells:	0.00
Other Wells:	1.26

** Population On Private Wells: 0.00

February 22, 1995